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**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY CLASS I PERMIT**

**COMPANY NAME:** Citizens Utilities Company  
**FACILITY NAME:** Valencia Power Plant  
**PERMIT NUMBER:** 1000402  
**DATE ISSUED:** 11/19/1999  
**EXPIRY DATE:** 11/19/2004

**SUMMARY**

This operating permit is issued to the Citizens Utilities Company (Citizens), the Permittee, for operation of the Valencia Power Plant, located at 1741 N. Grand Avenue in the City of Nogales, Santa Cruz County of Arizona.

There are three Hitachi MS 5001 M-series combustion gas turbines and four Alco diesel engines. The equipment is operated intermittently to provide peaking power and voltage support for Citizens' Arizona electric operations and for the Santa Cruz Electric Division service area. The equipment can be operated on natural gas, distillate oil, or a combination of these fuels. The Citizens has an annual power generation limit of total 47,000 MW-hours per year at facility wide such that it will not emit 250 tons per year or more of any criteria pollutant.

All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.) and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the A.A.C. All material permit conditions have been identified within the permit by a double underline. All terms and conditions of this permit are enforceable by the Administrator of the United States Environmental Protection Agency (U.S. EPA), except for those terms and conditions that are specifically designated as "State Requirements."

Citizens is a "major source". The potential emission rates of the following pollutants are greater than 100 tons per year: (i) sulfur dioxide, (ii) nitrogen oxides, and (iii) carbon monoxide. This permit is issued in accordance with Title V of the Clean Air Act, and Title 49, Chapter 3 of the Arizona Revised Statutes. Applicable requirements for the operations at the Citizens are listed in Attachment "C" of this permit.

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## **ATTACHMENT "A": GENERAL PROVISIONS**

### **Air Quality Control Permit No. 1000402 for CITIZENS UTILITIES COMPANY - Valencia Power Plant**

#### **I. PERMIT EXPIRATION AND RENEWAL** [A.R.S. § 49-426.F, A.A.C. R18-2-304.C.2, and 306.A.1]

- A. This permit is valid for a period of five years from the date of issuance of the permit.
- B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months prior to the date of permit expiration.

#### **II. COMPLIANCE WITH PERMIT CONDITIONS** [A.A.C. R18-2-306.A.8, A.R.S. § 49-463, and A.R.S. §49-464]

- A. The Permittee shall comply with all the conditions contained in Attachments “A” through “F” of this permit including all applicable requirements of Arizona air quality statutes and the air quality rules. Any permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.
- B. Need to halt or reduce activity not a defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

#### **III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE** [A.A.C. R18-2-306.A.8.c and 321]

- A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, or termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- B. The permit shall be reopened and revised under any of the following circumstances:
  - 1. Additional applicable requirements under the Act become applicable to the Class I source. Such reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to R18-2-322(B). Any permit revision required pursuant to this subparagraph shall comply with provisions in

R18-2-322 for permit renewal and shall reset the five year permit term.

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.
  3. The Director or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
  4. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.
- C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under paragraph 1 above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in paragraph III.B.1 of this Attachment shall not result in a resetting of the five year permit term.

#### **IV. POSTING OF PERMIT**

[A.A.C. R18-2-315]

- A. Permittee shall post such permit, or a certificate of permit issuance where the facility is located in such a manner as to be clearly visible and accessible. All equipment covered by the permit shall be clearly marked with one of the following:
1. Current permit number.
  2. Serial number or other equipment number that is also listed in the permit to identify that piece of equipment.
- B. A copy of the complete permit shall be kept on the site.

#### **V. FEE PAYMENT**

[A.A.C. R18-2-326 and 306.A.9.]

Permittee shall pay fees to the Director pursuant to A.R.S. § 49-426(E) and A.A.C. R18-2-326.

#### **VI. ANNUAL EMISSIONS INVENTORY QUESTIONNAIRE**

[A.A.C. R18-2-327]

- A. Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.
- B. The questionnaire shall be on a form provided by the Director and shall include the information

required by A.A.C. R18-2-327.

## **VII. COMPLIANCE CERTIFICATION**

- A. Permittee shall submit a compliance certification to the Director twice each year, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than May 15th, and shall report the compliance status of the source during the period between October 1st of the previous year, and March 31st of the current year. The second certification shall be submitted no later than November 15th, and shall report the compliance status of the source during the period between April 1st and September 30th of the current year. The initial compliance certification shall reflect compliance status of the source beginning the date of permit issuance. [A.A.C. R18-2-309.2.a]

The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification; [A.A.C. R18-2-309.2.c.i]
2. Compliance status with each applicable requirement; [A.A.C. R18-2-309.2.c.ii]
3. Whether compliance was continuous or intermittent; [A.A.C. R18-2-309.2.c.iii]
4. Method(s) used for determining the compliance status of the source, currently and over the reporting period; [A.A.C. R18-2-309.2.c.iv]
5. A progress report on all outstanding compliance schedules submitted pursuant to Section XII.D of this Attachment. Progress reports submitted with compliance certifications satisfy the reporting requirements of A.A.C. R18-2-309.5.d. [A.A.C. R18-2-309.5.d]

- B. A copy of all compliance certifications for Class I permits shall also be submitted to the EPA Region 9. [A.A.C. R18-2-309.2.d]

## **VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS** [A.A.C. R18-2-309.3]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

## **IX. INSPECTION AND ENTRY** [A.A.C. R18-2-309.4]

The Permittee shall allow the Director or the authorized representative of the Director upon presentation of proper credentials to:

- A. Enter upon the Permittee's premises where a source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
- B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
- C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and
- E. Record any inspection by use of written, electronic, magnetic and photographic media.

## **X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD**

If this source becomes subject to a standard promulgated by the Administrator pursuant to section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard. [A.A.C R18-2-310.C]

## **XI. ACCIDENTAL RELEASE PROGRAM**

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the timeline specified in 40 CFR Part 68. [40 CFR 68]

## **XII. REPORTING OF EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCIES**

### **A. EXCESS EMISSIONS REPORTING [A.A.C R18-2-310.C]**

1. Excess emissions, as defined in A.A.C. R18-2-101.37, shall be reported as follows:

a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

(1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from paragraph b. of this subsection.

(2) Detailed written notification within 72 hours of the notification pursuant to subparagraph (1) of this paragraph.

b. Report shall contain the following information:

(1) Identity of each stack or other emission point where the excess emissions

occurred.

- (2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions.
- (3) Date, time and duration or expected duration of the excess emissions.
- (4) Identity of the equipment from which the excess emissions emanated.
- (5) Nature and cause of such emissions.
- (6) If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions.
- (7) Steps taken to limit the excess emissions. If the excess emissions resulted from start-up or malfunction of the engines, the report shall contain a list of the steps taken to comply with the permit procedures.

2. In the case of continuous or recurring excess emissions, the notification requirements of this section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to subsection A.1.a.(2) of this Section.

[A.A.C. R18-2-310.D]

3. It shall be the burden of the Permittee to demonstrate, through submission of the data and information required by Section XII.A.1 of Attachment "A", that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of excess emissions.

[A.A.C. R18-2-310.B]

#### B. PERMIT DEVIATIONS REPORTING

[A.A.C. R18-2-306.A.5]

1. A deviation means any situation in which an emissions unit fails to meet a permit term or condition. A deviation is not always a violation. A deviation can be determined through observation or through review of data obtained from any testing, monitoring, or recordkeeping established in this permit. For a situation lasting more than 24 hours which constitutes a violation, each 24 hour period is considered a separate deviation. Included in the meaning are any of the following:
  - a. A situation where emissions exceeded an emission limitation or standard;
  - b. A situation where process or control device parameter values indicate that an emission limitation or standard has not been met;

- c. A situation in which observations or data collected demonstrates noncompliance with an emission limitation or standard or any work practice or operating condition required by the permit.
- 2. Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Director by certified mail, facsimile, or hand delivery within two working days of the time when the Permittee first learned of the occurrence of the deviations.
- 3. All instances of deviations from permit requirements shall be clearly identified in the required semiannual monitoring report specified in Attachment "B", Section III.B, and shall be certified by the responsible official. [A.A.C. R18-2-306.A.5.a]

C. EMERGENCY PROVISION REPORTING

[A.A.C. R18-2-306.E]

- 1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
  - a. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of paragraph (b) of this subsection are met.
  - b. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - (1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;
    - (2) The permitted facility was at the time being properly operated;
    - (3) During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
    - (4) The permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken



to mitigate emissions, and corrective action taken.

- c. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
  - d. This provision is in addition to any emergency or upset provision contained in any applicable requirement.
- D. For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated.

[A.R.S. 49-426.I.5]

### **XIII. RECORD KEEPING REQUIREMENTS**

[A.A.C. R18-2-306.A.4]

- A. Permittee shall keep records of all required monitoring information including, but not limited to, the following:
  - 1. The date, place as defined in the permit, and time of sampling or measurements;
  - 2. The date(s) analyses were performed;
  - 3. The name of the company or entity that performed the analyses;
  - 4. A description of the analytical techniques or methods used;
  - 5. The results of such analyses; and
  - 6. The operating conditions as existing at the time of sampling or measurement.
- B. Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

### **XIV. REPORTING REQUIREMENTS**

[A.A.C. R18-2-306.A.5.a]

Permittee shall submit the following reports :

- A. Compliance certifications in accordance with Section VII of Attachment “A”.
- B. Reports of excess emissions, permit deviations, and emergencies in accordance with Section XII of Attachment “A”.

- C. Other reports required by Section III of Attachment “B”.

## **XV. DUTY TO PROVIDE INFORMATION**

[A.A.C. R18-2-304.G and 306.A.8.e]

- A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.
- B. If the Permittee has failed to submit any relevant facts or if the Permittee has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

## **XVI. PERMIT AMENDMENT OR REVISION**

[A.A.C. R18-2-318, 319 and 320]

Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVII, as follows:

- A. Administrative Permit Amendment (A.A.C. R18-2-318);
- B. Minor Permit Revision (A.A.C. R18-2-319);
- C. Significant Permit Revision (A.A.C. R18-2-320).

The applicability and requirements for such action are defined in the above referenced regulations.

## **XVII. FACILITY CHANGE WITHOUT PERMIT REVISION**

[A.A.C. R18-2-317]

- A. Permittee may make changes at the permitted source without a permit revision if all of the following apply:
  - 1. The changes are not modifications under any provision of Title I of the Act or under A.R.S. § 49-401.01(17).
  - 2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions.
  - 3. The changes do not violate any applicable requirements or trigger any additional applicable requirements.
  - 4. The changes satisfy all requirements for a minor permit revision under R18-2-319(A).
  - 5. The changes do not contravene federally enforceable permit terms and conditions that are

monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

- B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of subsections (A) and (C) of this Section.
- C. For each such change under subsections A and B of this Section, a written notice by certified mail or hand delivery shall be received by the Director and, for Class I permits, the Administrator, a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change but must be provided as far

in advance of the change as possible or, if advance notification is not practicable, as soon after the change as possible. Each notification shall include:

1. When the proposed change will occur.
2. A description of each such change.
3. Any change in emissions of regulated air pollutants.
4. The pollutants emitted subject to the emissions trade, if any.
5. The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the provisions in the implementation plan authorizing the trade.
6. If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply.
7. Any permit term or condition that is no longer applicable as a result of the change.

## **XVIII. TESTING REQUIREMENTS**

[A.A.C.R18-2-312]

### **A. Operational Conditions During Testing**

Tests shall be conducted during operation at the full load of each unit under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Director, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative operational conditions unless otherwise specified in the applicable standard.

### **B. Performance tests shall be conducted and data reduced in accordance with the test method and**

procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

C. Test Plan

At least 14 calendar days prior to performing a test, the owner or operator shall submit a test plan to the Director, in accordance with the Arizona Testing Manual. This test plan must include the following:

1. test duration;
2. test location(s);
3. test method(s); and
4. source operation and other parameters that may affect test results.

D. Stack Sampling Facilities

Permittee shall provide or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platforms;
3. Safe access to sampling platforms; and
4. Utilities for sampling and testing equipment.

E. Interpretation of Final Results

Each performance test shall consist of three separate runs using the required test method. Each run shall be conducted in accordance with the applicable standard and test method. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. If a sample is accidentally lost or conditions occur which are not under the Permittee's control and which may invalidate the run, compliance may, upon the Director's approval, be determined using the arithmetic mean of the other two runs. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes, forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions or other conditions beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation which demonstrates good cause must be submitted.

F. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Director within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

**XIX. PROPERTY RIGHTS**

[A.A.C. R18-2-306.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

**XX. SEVERABILITY CLAUSE**

[A.A.C. R18-2-306.A.7]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

**XXI. PERMIT SHIELD**

[A.A.C. R18-2-325]

Compliance with the conditions of this permit shall be deemed compliance with the applicable requirements identified in Attachment "C" of this permit. The permit shield shall not apply to any changes made pursuant to Section XVI.B of this Attachment and Section XVII of this Attachment.

## ATTACHMENT "B": SPECIFIC CONDITIONS

Air Quality Control Permit No. 1000402

For

*CITIZENS UTILITIES COMPANY - Valencia Power Plant*

### I. Facility Wide Requirements

- A. Within 180 days of issuance of this permit, the Permittee shall have on site a person that is certified in EPA Reference Method 9. [A.A.C. R18-2-306.A.3]
- B. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit reports of all monitoring activities required by this Attachment performed in the same six month period as applies to the compliance certification period. [A.A.C. R18-2-306.A.5.a]

### II. Hitachi Gas Turbine Generator Units 1, 2, and 3

#### A. Power Generating, Operating Hour and Fuel Limitations

##### 1. Limits/Standards

- a. The Permittee shall not be allowed to operate the three turbines in such a manner that their combined electrical generation exceeds 45,000 MW-hours, based on a 12-month rolling total. [Installation Permit #45001 Item 2 of Attachment A]
- b. If any one-hour period during which the average water-to-fuel ratio is greater than or equal to 1:1 as measured by the continuous monitoring system, the turbines shall be deemed to be operating in power augmentation mode.
- c. The Permittee may operate three turbines in power augmentation mode as defined in Section II.A.1.b above. The Permittee shall not operate the three turbines in the power augmentation mode such that their combined electrical generation exceeds 36,000 MW-hours, based on a 12-month rolling total. [A.A.C. R18-2-306.01]
- d. The Permittee shall burn only the following as fuel:
- (1) Natural gas;
  - (2) Fuel oil no. 2; or
  - (3) Co-firing of natural gas and fuel oil no. 2.

## 2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

- a. The Permittee shall continuously operate and maintain the non-resettable megawatt-hour meters on each turbine.
- b. The Permittee shall record the dates, hours, and modes (power augmentation or base mode) of operation for each turbine.
- c. The Permittee shall log in ink, the total quantity of electrical generation produced by each turbine, in MW-hours based on a 12-month rolling total.
- d. The Permittee shall log in ink the total quantity of electrical generation produced by each turbine in power augmentation mode as defined in Section II.A.1.b, in MW-hours based on a 12-month rolling total.
- e. Permittee shall log in ink or in an electronic format a record of any change in fuel type including:
  - (1) Type of fuel change;
  - (2) Date of the fuel change; and
  - (3) Time of the fuel change.

## B. Nitrogen Oxide

### 1. Emission Limitations/Standards

[40 CFR §60.332]

The Permittee shall not cause to be discharged into the atmosphere from the stack of any turbine, any gases which contain nitrogen oxides in excess of that calculated from the following equation:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

Where:

STD= allowable NO<sub>x</sub> emissions (percent by volume at 15 % O<sub>2</sub> and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in 40 CFR §60.332(a)(3).

## 2. Air Pollution Control

- a. The Permittee shall, to the extent practicable, maintain and operate the water injection system in a manner consistent with good air pollution control practice for minimizing emissions from the turbines.

[A.A.C. R18-2-331, 40 CFR 60.11(d)]

- b. The Permittee shall operate the turbines in accordance with the water-to-fuel ratios established during the initial performance test.

[A.A.C. R18-2-331]

- c. The Permittee shall comply with the following while burning the specified fuel:

(1) Natural Gas

The followings shall apply to any turbine when burning only natural gas:

- (a) The Permittee shall begin water injection when the natural gas fuel flow rate exceeds 6,700 pounds per hour.
- (b) The Permittee shall not cease water injection until the natural gas fuel flow rate falls below 6,400 pounds per hour.

(2) Diesel Fuel / Mixed Fuel

The followings shall apply to any turbine when burning only diesel fuel or a mixture of diesel fuel and natural gas:

- (a) The Permittee shall begin water injection when the diesel fuel flow rate exceeds 5,100 pounds per hour.
- (b) The Permittee shall not cease water injection until the diesel fuel flow rate falls below 4,800 pounds per hour.

[A.A.C. R18-2-331]

- d. The Permittee shall install an audible alarm system on each turbine to alert the turbine operator when the water injection system becomes inoperable.

[A.A.C. R18-2-331, 306.A.3.b]

## 3. Monitoring, Recordkeeping, and Reporting Requirements

- a. Nitrogen Content

[40 CFR §60.334(b)]



The Permittee shall keep on record a copy of the fuel oil purchase specification sheet. This specification sheet shall include the nitrogen content and the method used to determine the nitrogen content of the fuel oil.

b. Continuous Monitoring System for Fuel Use, Water Flow, and Water to Fuel Ratio

- (1) The Permittee shall operate and maintain a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within  $\pm 5.0$  percent and shall be approved by the Director.

[40 CFR §60.334(a)]

- (2) The Permittee shall report to the Director any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system described in Section II.B.3.b.(1) of this attachment, falls below the water-to-fuel ratios determined by the performance test to demonstrate compliance with the nitrogen oxides emission standards set forth in Section II.B.1 of this attachment.

[40 CFR §60.334.(c).(1)]

- (3) The Permittee shall report to the Director any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test.

[40 CFR §60.334.(c).(1)]

- (4) Each report required by Sections II.B.3.b.(2) and (3) above shall follow the requirements set forth in 40 CFR §60.334.(c).(1).

[40 CFR §60.334.(c).(1)]

**4. Testing Requirements**

[A.A.C. R18-2-312]

- a. The Permittee shall conduct a performance test on one of the turbines during the permit term at four load points, including minimum load, 100% base load, and a load corresponding to power augmentation mode.
- b. The Permittee shall conduct or cause to be conducted annual performance tests on the turbines. The performance tests shall be conducted as follows:
  - (1) One turbine shall be tested each year on a rotational basis.
  - (2) Each year the performance test will be conducted for one fuel; either natural gas or diesel. If the performance test is conducted with natural gas in one year, it shall be conducted with diesel in the subsequent year.

- (3) The performance test shall be conducted at a full load (100% of peak load) and the load corresponding to power augmentation mode as defined in Section II.A.1.b.
- (4) The Permittee shall use US EPA Reference Method 20 to conduct the performance test for nitrogen oxides as specified in the Arizona Testing Manual for Air Pollutant Emissions. Other equivalent test method may be used with prior approval by the Director.
- (5) The test report submittal to the Director shall include a demonstration that the following requirements have been met:
  - (a) The nitrogen oxides emission limits as specified in Section II.B.1.
  - (b) Continued validity of the water to fuel ratios established during the initial performance test.

## **C. Sulfur Dioxide**

### **1. Emission Limitations/Standards**

The Permittee shall not burn in any turbine any fuel which contains sulfur in excess of 0.5 percent by weight.

[40 CFR §60.333, Installation Permit # 45001]

### **2. Monitoring, Recordkeeping, and Reporting Requirements**

#### **a. Sulfur Content** [40 CFR §60.334(b), A.A.C. R18-2-306.01]

##### **(1) While Burning Gaseous Fuel**

Permittee shall maintain a vendor-provided copy of that part of the Federal Energy Regulatory Commission (FERC)-approved Tariff agreement that contains the sulfur content and the lower heating value of the pipeline quality natural gas.

##### **(2) While Burning Liquid Fuel**

Permittee shall keep on record a copy of the fuel oil purchase specification sheet. This specification sheet shall include the sulfur content (sulfur weight percentage) and the method used to determine the sulfur content of the fuel oil.

#### **b. The Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.5 percent.**

**D. Carbon Monoxide**

[A.A.C R18-2-306.01, 331.A.3.a]

**1. Emission Limitations/Standards**

a. Base Mode

The Permittee shall not cause to be discharged into the atmosphere from the stack of any turbine, any gases which contain carbon monoxide in excess of 4.4 lbs per MW-hour.

b. Power Augmentation Mode (as defined in Section II.A.1.b of this attachment)

The Permittee shall not cause to be discharged into the atmosphere from the stack of any turbine, any gases which contain carbon monoxide in excess of 10 lbs per MW-hour.

**2. Monitoring, Recordkeeping, and Reporting Requirements**

[A.A.C R18-2-306.A.3.b]

The Permittee shall report to the Director any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, exceeds the 1:1 ratio by more than ten percent.

**3. Testing Requirements**

[A.A.C R18-2-312]

The Permittee shall conduct or cause to be conducted annual performance tests on the turbines to demonstrate compliance with the carbon monoxide limitations in Section II.D.1 of this attachment. The performance tests shall be conducted as follows:

- a. One gas turbine shall be tested each year on a rotational basis.
- b. Each year the performance test will be conducted for one fuel; either natural gas or diesel. If performance test is conducted with natural gas in one year, it will be done with diesel in the subsequent year.
- c. The performance test shall be conducted at a full load (100% of peak load) of base mode and the load corresponding to power augmentation mode as defined in Section II.A.1.b.
- d. The Permittee shall use US EPA Reference Method 10 to conduct the performance test for carbon monoxide as specified in the Arizona Testing Manual for Air Pollutant Emissions. Other equivalent test method may be used with prior approval by the Director.

- e. The test report submittal to the Director shall include a demonstration that the following requirements have been met:
  - (1) The CO emission limits as specified in Section II.D.1.
  - (2) Continued validity of the water to fuel ratios established during the initial performance test.

### **III. Alco Diesel Generator Units 4, 5, 6, and 7**

#### **A. Power Generating and Fuel Limitations**

##### **1. Limits/Standards**

- a. The Permittee shall not be allowed to operate the four Alco internal combustion engines in such a manner that their combined electrical generation exceeds 2,000 MW-hours, based on a 12-month rolling total.

[Condition 1 of Attachment A in Installation Permit #45001, A.A.C. R18-2-306.01]

- b. The Permittee shall burn only the following as fuel:

- (1) Natural gas;
- (2) Fuel oil no. 2; or
- (3) Co-firing of natural gas and fuel oil no. 2.

[A.A.C. R18-2-306.A.2]

##### **2. Monitoring, Recordkeeping, and Reporting Requirements**

[A.A.C. R18-2-306.A.3.b]

- a. The Permittee shall continuously operate and maintain a non-resettable megawatt-hour meter on each engine.
- b. The Permittee shall record the dates and hours of operation for each engine.
- c. The Permittee shall log in ink, the total quantity of electrical generation produced by each engine, in MW-hours based on a 12-month rolling total.
- d. Permittee shall log in ink or in an electronic format a record of any change in fuel type including:
  - (1) Type of fuel change;
  - (2) Date of the fuel change; and
  - (3) Time of the fuel change.

#### **B. Opacity of Visible Emissions**

**1. Emission Limitations/Standards**

[A.A.C. R18-2-719.E]

The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period of time greater than ten consecutive seconds which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

**2. Monitoring, Recordkeeping, and Reporting Requirements**

[A.A.C. R18-2-306.A.3.b]

**Monitoring Requirements for Visible Emissions while Burning Diesel**

- a. Permittee shall monitor and record for each engine the number of hours fuel oil is burned continuously.
- b. Permittee shall monitor opacity according to the following schedule:
  - (1) If diesel is combusted in the engine continuously for a time period greater than 48 hours but less than 168 hours, at least one opacity reading will be observed at the exit of the unit's stack.
  - (2) If diesel is combusted in the engine continuously for a time period greater than 168 hours, at least one opacity reading will be observed during each 168 hour period at the exit of the unit's stack.
- c. All opacity readings will be observed in accordance with EPA Reference Method 9. Permittee shall log in ink or in an electronic format and maintain a record of the opacity readings from above.

**C. Particulate Matter**

**1. Emission Limitations/Standards**

[A.A.C. R18-2-719.C]

- a. Permittee shall not cause, allow, or permit the emission of particulate matter, caused by combustion of fuel, from any engine in excess of the amounts calculated by the following equation:

$$E = 1.02 Q^{0.769} \text{ where:}$$

E= the maximum allowable particulate emissions rate in pounds-mass per hour.

Q= the heat input in million Btu per hour.

- b. Definition of Heat Input

[A.A.C. R18-2-719.B]

- (1) For the purposes of condition III.C.1.a above, “heat input” is defined as the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. Compliance tests shall be conducted during operation at the nominal rated capacity of each unit.
- (2) The total heat input from the burning of all fuels shall be computed as follows:

$$TotalHeatInput = \sum_{j=1}^n \sum_{i=1}^k (NHV_{ij}) x (U_{ij})$$

**Where:**

$NHV_i$  = Net heating value of each fuel “I” at standard temperature and pressure fired in each unit “j”;  
and

$U_i$  = Fuel firing rate of each fuel “I” in each unit “j”.

## 2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.b]

Permittee shall keep on record the contractual agreement with the liquid fuel vendor indicating the following information concerning diesel being fired for each shipment of diesel:

- a. The name of the diesel supplier;
- b. The heating value of diesel;
- c. The ash content of diesel; and
- d. The method used to determine the ash content of diesel.

## D. Sulfur Dioxide

### 1. Emission Limitations/Standards

- a. Permittee shall not cause, allow, or permit emissions of more than 1.0 pounds of sulfur dioxide per million Btu heat input while burning diesel.

[A.A.C. R18-2-719.F, A.A.C. R18-2-306.01]

- b. Permittee shall not use high sulfur oil (fuel sulfur content  $\geq 0.5\%$  by weight) as a fuel unless the Permittee demonstrates to the satisfaction of the Director that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in A.A.C. R18-2-202 will not be violated.

- c. Definition of Heat Input [A.A.C. R18-2-719.B]

For the purposes of condition III.D.1.a above, the Permittee shall use the definition of heat input given under condition III.C.1.b of this Attachment.

**2. Monitoring, Recordkeeping, and Reporting Requirements**

[A.A.C. R18-2-719.I, 306.A.3.b]

- a. Monitoring Requirements While Burning Gaseous Fuel

Permittee shall maintain a vendor-provided copy of that part of the Federal Energy Regulatory Commission (FERC)-approved Tariff agreement that contains the sulfur content and the lower heating value of the pipeline quality natural gas.

- b. Monitoring Requirements While Burning Liquid Fuel

Permittee shall keep records of fuel supplier certification including the following information:

- (1) The name of the diesel supplier;
- (2) The sulfur content and the heating content of diesel from which the shipment came; and
- (3) The method used to determine the sulfur content of the diesel.

The Permittee shall maintain records of all emissions calculations performed for any change in (b) above using the following equation:

$\text{SO}_2$  (lb/MMBtu)

$$= \frac{2.0 \times [(\text{Weight percent of sulfur}/100) \times \text{Density of Diesel (lb/gal)}]}{[(\text{Heating value (Btu/gal)}) \times (1 \text{ MMBtu}/1,000,000 \text{ Btu})]}$$

- c. The Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.5 percent.

[A.A.C. R18-2-719.J]

**IV. Diesel Storage Tank**

[40 CFR §60.110(c), §60.116b]

- A.** The Permittee shall keep copies of all records, except for the record required by the following paragraph B, for at least 5 years. The record required by the following paragraph B will be kept for the life of the source.
- B.** The Permittee shall keep readily accessible records showing the dimension of the storage vessel and the analysis showing the capacity of the storage vessel for each storage vessel.

## **V. Other Periodic Activities**

### **A. Use of Paints**

#### **1. Opacity of Visible Emissions**

##### **Emission Limitations/Standards**

Visible emissions from spray painting operations shall not have an opacity greater than 40%, measured in accordance with by EPA Reference Method 9.

[A.A.C.R18-2-702.B]

#### **2. Volatile Organic Compounds**

##### **a. Emission Limitations/Standards**

While performing spray painting operations the Permittee shall comply with the following requirements:

- (1) The Permittee shall not conduct any spray painting operation without minimizing organic solvent emissions. Such operations other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

- (2) The Permittee shall not either:

- (a) Employ, apply, evaporate or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or
- (b) Thin or dilute any architectural coating with a photochemically reactive solvent.

[A.A.C.R18-2-727.B]

- (3) For the purposes of parts (2) and (5) of this condition, a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in paragraphs (a) through (c) of this subsection, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

- (a) A combination of the following types of compounds having an olefinic or cycle-olefinic type of unsaturation - hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones : five percent



- (b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: eight percent
  - (c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent
- (4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups or organic compounds described in subsection c(1) through c(3) of this condition, it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.  
[A.A.C.R18-2-727.D]
- (5) *The Permittee shall not dispose by evaporation more than 1.5 gallons of photochemically reactive solvent in any one day.*  
[SIP Provision R9-3-527.C]

**b. Monitoring, Recordkeeping, and Reporting Requirements**

[A.A.C. R18-2-306.A.3.b]

- (1) *Each time a spray painting project is conducted, the Permittee shall log in ink or in an electronic format, a record of the following:*
- (a) *The date the project was conducted;*
  - (b) *The duration of the project;*
  - (c) *Type of control measures employed; and*
  - (d) *Material Safety Data Sheets for all paints and solvents used in the project.*
- (2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of part (1) above.

**B. Solvent Degreasing and Gasoline Fuel Dispensing Nozzles**

*The Permittee shall process, store, use, and transport materials including solvents or volatile compounds in such a manner and by such means that they will not evaporate, leak, escape, or be otherwise discharged into the atmosphere so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and usage of such control methods, devices, or equipment shall be mandatory.*  
[A.A.C. R18-2-730.F]

## **ATTACHMENT "C": APPLICABLE REQUIREMENTS**

***Air Quality Control Permit No. 1000402  
For  
CITIZENS UTILITIES COMPANY - Valencia Power Plant***

### **REQUIREMENTS SPECIFICALLY IDENTIFIED AS APPLICABLE**

***Compliance with the terms contained in this permit shall be deemed compliance with the following federally applicable requirements in effect on the date of permit issuance:***

### ***ARIZONA ADMINISTRATIVE CODE (A.A.C.) TITLE 18, Chapter 2***

#### **ARTICLE 7**                      **EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS**

<b><i>R18-2-702.B</i></b>	<b><i>General Provisions</i></b>
<b><i>R18-2-719.B</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.C.1</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.E</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.F</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.H</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.I</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-719.J</i></b>	<b><i>Standards of Performance for Existing Stationary Rotating Machinery</i></b>
<b><i>R18-2-727</i></b>	<b><i>Standards of Performance for Spray Painting Operations</i></b>
<b><i>SIP R9-2-527.C</i></b>	<b><i>Standards of Performance for Spray Painting Operations</i></b>
<b><i>R18-2-730.F</i></b>	<b><i>Standards of Performance for Unclassified Sources</i></b>

#### ***ARTICLE 9***                      ***NEW SOURCE PERFORMANCE STANDARDS***

<b><i>R18-2-901.1</i></b>	<b><i>40 CFR 60, Subpart A, General Provisions</i></b>
<b><i>R18-2-901.39</i></b>	<b><i>40 CFR 60, Subpart GG</i></b>
<b><i>R18-2-901.16</i></b>	<b><i>40 CFR 60, Subpart Kb</i></b>

## ***ATTACHMENT "D": EQUIPMENT LIST***

***Air Quality Control Permit No. 1000402  
For  
CITIZENS UTILITIES COMPANY - Valencia Power Plant***

<b><i>PERMITTED EQUIPMENT</i></b>					
<b><i>Equipment/ Emission Unit I.D.</i></b>	<b><i>Description</i></b>	<b><i>Size</i></b>	<b><i>Serial Number</i></b>	<b><i>Model</i></b>	<b><i>Date of Installation</i></b>
<b><i>P1</i></b>	<b><i>Hitachi MS 5001 Combustion Gas Turbine Generator</i></b>	<b><i>13.5 MW</i></b>	<b><i>960621</i></b>	<b><i>Model M</i></b>	<b><i>1988</i></b>
<b><i>P2</i></b>	<b><i>Hitachi MS 5001 Combustion Gas Turbine Generator</i></b>	<b><i>13.5 MW</i></b>	<b><i>960631</i></b>	<b><i>Model M</i></b>	<b><i>1988</i></b>
<b><i>P3</i></b>	<b><i>Hitachi MS 5001 Combustion Gas Turbine Generator</i></b>	<b><i>13.5 MW</i></b>	<b><i>960641</i></b>	<b><i>Model M</i></b>	<b><i>1988</i></b>
<b><i>P4</i></b>	<b><i>Alco Diesel Engine</i></b>	<b><i>950 KW</i></b>	<b><i>5288</i></b>	<b><i>8-121/2X1338</i></b>	<b><i>1949</i></b>
<b><i>P5</i></b>	<b><i>Alco Diesel Engine</i></b>	<b><i>950 KW</i></b>	<b><i>5289</i></b>	<b><i>8-121/2X1338</i></b>	<b><i>1949</i></b>
<b><i>P6</i></b>	<b><i>Alco Diesel Engine</i></b>	<b><i>950 KW</i></b>	<b><i>5290</i></b>	<b><i>8-121/2X1338</i></b>	<b><i>1949</i></b>
<b><i>P7</i></b>	<b><i>Alco Diesel Engine</i></b>	<b><i>950 KW</i></b>	<b><i>5291</i></b>	<b><i>8-121/2X1338</i></b>	<b><i>1949</i></b>
<b><i>P8</i></b>	<b><i>Diesel Fuel Storage Tank</i></b>	<b><i>50,000 Gal</i></b>	<b><i>--</i></b>	<b><i>--</i></b>	<b><i>1997</i></b>
<b><i>F1</i></b>	<b><i>Balkamp Gasoline Fuel Dispensing Nozzle</i></b>	<b><i>--</i></b>	<b><i>--</i></b>	<b><i>715-1709</i></b>	<b><i>1994</i></b>
<b><i>F2</i></b>	<b><i>Spray Painting Equipment</i></b>	<b><i>--</i></b>	<b><i>--</i></b>	<b><i>--</i></b>	<b><i>--</i></b>

<i>Equipment/ Emission Unit I.D.</i>	<i>Description</i>	<i>Size</i>	<i>Serial Number</i>	<i>Model</i>	<i>Date of Installation</i>
<i>Water Injection System</i>	<i>Designed by Turbine Technology Services</i>	--	--	--	<i>1997</i>